

MEMO

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To: Bonnie Lavelle
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Subj: In Vitro Bioaccessability of Lead in VBI70 Soils

As was discussed in the technical group meeting yesterday, the in vitro bioaccessability of lead has been measured for the two VBI70 soils that were tested in the in vivo swine study. The results are summarized below:

Test Material	In Vitro Bioaccessability (%)	In Vivo Relative Bioavailability (%)
Eastern ID# 3-15621-f	86.3%	87%
Western ID# 3-15628-f	86.3%, 83.1%*	81%

* Duplicate analysis

As seen, the results observed from the in vitro testing closely match those observed using juvenile swine.

In addition, today I discussed with John Drexler whether it is unexpected that the RBA should be relatively high for lead that is predominantly "lead phosphate". As I speculated at the meeting, not all lead phosphates are equal. John indicated that the lead phosphate particles at VBI70 are very small (tending to increase their RBA), and are also likely to be mainly amorphous rather than crystalline (also tending to increase their RBA). He also cautioned against drawing strong conclusions regarding the RBA of lead phosphate from the soil amendment studies (as discussed by Joyce), identifying a number of reasons why it may be premature to generalize from the studies performed to date.

DRAFT

VBI70 Bioaccessibility ("BAC") Results

Sample ID	Arsenic		Lead	
	Conc (ppm)	BAC (%)	Conc (ppm)	BAC (%)
Physico-Chemical Characterization of Soils				
ND-98-022	130	7	96	76
ND-98-056	234	8	125	83
ND-98-027	184	11	349	68
ND-98-113	1400	3	362	64
ND-98-117	1900	14	423	78
ND-98-102	707	13	475	76
ND-98-080	507	23	586	79
ND-98-106	977	18	682	74
ND-98-119	2700	3	691	64
ND-98-118	1200	26	1434	83
Pilot Scale Soil Characterization				
SC-00017	9	74	39	80
SC-00105	21	47	80	72
SC-00114	22	22	82	76
SC-00039	25	39	92	71
SC-00071	6	56	96	85
SC-00065	7	11	101	72
SC-00101	10	24	105	77
SC-00027	165	51	115	73
SC-00043	142	54	119	72
SC-00025	24	56	126	79
SC-00038	23	37	151	72
SC-00069	15	33	151	87
SC-00035	12	46	156	77
SC-00083	12	45	161	85
SC-00084	23	50	175	81
SC-00086	185	39	203	82
SC-00048	35	71	261	79
SC-00010	173	48	422	78
SC-00104	1490	45	1140	89
SC-00015	1470	52	1490	96
SC-00006	836	58	1490	91
SC-00046	1490	53	1560	94
SC-00023	7630	38	2160	74
SC-00070	15300	54	3500	67
SC-00011	22400	58	4520	66
SC-00077	24300	55	5160	58
SC-00018	27200	53	5660	64

HIGHER
BAC WITH
INCREASING
Pb CONC ?

Candidate source material, not site soils